

**Vulnerability DSM
Summary Brief
to 3rd ONR Ship Design Process Workshop**

April 2009

Vulnerability DSM

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Review and Interpret Requirements	1	.																					
Provide Susceptibility System Inputs (EXTERNAL)	2	1	.																				
Provide Recoverability System Inputs (EXTERNAL)	3	1		.																			
Evaluate Prior Phase (AoA) Designs	4	1	1	1	.	1																	
Define Vital Systems and Spaces	5	1	1	1	1	.																	
Input Hit Distribution (EXTERNAL)	6	1			1		.																
Add Design Detail where Required	7		1	1	1	1		.	4														
Conduct Trade-Offs	8	4			4	4	4	4	.														
Evaluate Shock	9	1	1	1	1	1	1	1	4	.													
Evaluate Holing	10	1			1	1	1	1	4		.												
Evaluate Whipping	11	1			1		1	1	4			.											
Perform Vulnerability Assessment (Modeling)	12	1			1	1	1	1	4	1	1	1	.										
Perform Damage Stability	13	1			1	1	1	1	4	1	1	1		.									
Prepare Cost Estimate Sheets	14				1			1	4						.	1							
Conduct Risk Assessment	15	1			1	1			4	1	1	1	1	1	1	.	1			1			
Generate Cost Estimates (EXTERNAL)	16														1	1	.						
Capture Uncertainty in Assessments	17	1					1	1	4	1	1	1	1	1	1	1	1	.					
Make Recommendations for Survivability Changes	18								4	1	1	1	1	1	1	1	1	1	.				
Report Vulnerability Results/Conclusions	19								4	1	1	1	1	1				1	1	.			
Develop Reliability Growth Plan	20	1													1	1			1	1	.		
Output Recoverability System Assessment	21			1					4	1	1	1	1	1		1		1	1			.	
Output Susceptability System Assessment	22		1						4				1	1		1		1	1				.

Useful & effective exercise; DSM shows promise!

22 Activities for early Preliminary Design

Recommendations

- **Describe how DSM for Vulnerability will be integrated with Hull, Machinery, ITD, and other DSM efforts.**
- **Apply DSM to DDS 072-4 (“Hull Mech, Elect Systems Survivability”)**
- **Do same exercise with Susceptibility and Recoverability processes.**